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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/881,823	06/15/2001	Wenyuan Shi	22851-032	8957

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EXAMINER	
ZEMAN, ROBERT A	

ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/881,823	SHI ET AL.	
	Examiner	Art Unit	
	Robert A. Zeman	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-8,11-14 and 18-53* is/are pending in the application.

4a) Of the above claim(s) *5-8,11-14 and 18-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *5-8,11-14 and 18-53* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The amendment and response filed on 10-7-2003 are acknowledged. Claims 25, 28-29, 31, 40, 43-44 and 46 have been amended.

This application contains claims 5-8, 11-14 and 18-24 drawn to an invention nonelected with traverse in Paper No. 11. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claims 25-53 are currently under examination.

Claim Objections Withdrawn

The objection to claims 28 and 43 for having unclear punctuation to delineate the various deposited materials is withdrawn in light of the amendment thereto.

Claim Rejections Withdrawn

35 USC § 112

The rejection to claims 28 and 43 are rejected under 35 U.S.C. 112, first paragraph, for not being in full compliance with 37 CFR 1.803-1.809 is withdrawn in light of the amendment to the specification an Applicant's statement regarding the availability of the deposited materials.

The rejection of claim 25 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the phrase "an antigen displayed from by the cariogenic organism from the subject" is withdrawn in light of the amendment thereto.

The rejection of claim 25 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the phrase "derived from a species other than that of the subject in need of such treatment" is withdrawn in light of the amendment thereto.

The rejection of claims 28 and 43 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by reciting non-elected inventions is withdrawn in light of the amendment thereto.

The rejection of claims 29, 31, 44 and 46 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the phrase "includes an amino sequence of SEQ ID NO: X" is withdrawn in light of the amendment thereto.

The rejection of claim 40 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the phrase "derived from a species other than that of the subject that hosts the cariogenic organism" is withdrawn in light of the amendment thereto.

Upon further consideration the rejection of claims 25-35, 37-50 and 52-53 under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (Hybridoma Volume 17 No. 4, 1998, pages 365-371 – IDS-7) in view of Carter et al. (WO 92/22653) is withdrawn.

Upon further consideration the rejection of claims 25-27, 33-42 and 48-53 under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (European Journal of Immunology 1994 Vol. 24 (1) pages 131-138) in view of Adair et al (U.S. Patent 5,877,293) is withdrawn.

Upon further consideration the rejection of claims 25-35, 37-50 and 52-53 under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (European Journal of Immunology 1994 Vol. 24 (1) pages 131-138) in view of Carter et al. (WO 92/22653) is withdrawn.

Claim Rejections Maintained

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

The provisional rejection of claims 25, 35 and 37-38 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 7, 10, 12 and 17 of copending Application No. 09/378,577 is maintained for reasons of record. Applicant has stated they will not comment on the merit of said rejection until any of the claims at issue in the copending application have been allowed. Consequently, in the absence of any rebuttal the rejection is maintained for the reasons set forth in the previous Office action.

New Grounds of Rejection

35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25-53 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Applicant has amended independent claims 25 and 40 to recite, "wherein the portion of the monoclonal antibody that **triggers the humoral immune response** is from the same species as the subject". This phrase does not appear in the specification, or original claims as filed. Applicant does not point out specific basis for this limitation in the application, and none is apparent. Therefore this limitation is new matter.

Claims 25-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The amended claims are drawn to methods of treating or preventing dental

caries comprising the administration of a chimeric antibody wherein the chimeric antibody must possess four properties. Said chimeric antibodies must 1) bind to a cariogenic organism; 2) elicit a humoral immune response in the oral cavity to an antigen of the cariogenic organism; 3) the portion of the chimeric antibody that binds to the cariogenic organism must be derived from a species other than that of the treated subject; and 3) the portion of the chimeric monoclonal antibody that triggers the humoral immune response must be derived from the same species as the subject.

The humoral branch of the immune system involves the interaction of B cells with antigen and their subsequent proliferation of and differentiation into antibody-secreting plasma cells. Therefore the "trigger" for **any** humoral immune response is the interaction of the antigen with B cells. The chimeric antibodies of the instant invention, by definition, cannot trigger a humoral immune response to an antigen of the cariogenic organism since any antibody produced as a result of them being the "trigger" would result in antibodies with specificity for the chimeric antibodies not the cariogenic organism. As illustrated by the 2nd Edition of Immunology (W.H. Freeman and Company, 1994, pages 19-20), the humoral response begins when antigen cross-links the membrane bound antibody molecules on a B cell and the B cell interacts with an antigen-specific T_H cell. After processing the antigen the B cell presents it along with a class II MHC molecule on its membrane. The antigen-specific T_H cell binds to this antigen-MHC complex and begins to secrete cytokines that serve to stimulate B cell division and differentiation resulting in a population of antibody-secreting plasma cells and memory cells. Since the instant invention is drawn to methods of treating dental caries wherein the application of the claimed chimeric antibody **elicits** a humoral immune response, this means that the

treated subject's B cells bind to the chimeric antibody (which serves as the antigen) resulting in the production of antibodies with specificity for the chimeric antibody (anti-idiotype antibodies). The specification provides no guidance on what type of chimeric antibodies, if any, would be effective in treating dental caries in such an anti-idiotypic manner. Moreover, the instant claims are internally inconsistent. The instant claims require that the Fab portion of the chimeric antibody (the part that binds the cariogenic organism) be derived from a species other than that of the treated subject and that the portion of the chimeric antibody that that triggers the humoral response (i.e. the portion of the chimeric that binds to the B cell) be derived from a species other than that of the treated subject. These two limitations are contradictory since the Fab portion of the chimeric antibody not only binds the cariogenic organism but also "triggers" the humoral response. Moreover, that latter limitation encompasses the production of autoantibodies that is usually deleterious to the subject producing them. While the skill in the art of immunology is high, one of skill in the art would not be able to make a chimeric antibody to be used in the claimed method that would meet all the limitation of the rejected claims. It should also be noted that in the humoral arm of the immune system, antibodies serve as effectors of the humoral response by binding to antigen or neutralizing it or facilitating its elimination via cross-linking the antigen on a microorganism (resulting in clusters more easily ingested by phagocytic cells) or by activating the complement system (which results in the lysis of said microorganism).

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Zeman whose telephone number is (703) 308-7991. The examiner can normally be reached on Monday- Thursday, 7am -5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith can be reached on (703) 308-3909. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

L. F. Smith

LYNETTE R. F. SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Robert A. Zeman
December 23, 2003